

Chapter VI

THE MONUMENT IS COMPLETED

Although the opening of the monument had already been celebrated, much still had to be done before the public could visit. When Casey estimated that he needed an additional \$250,000 to complete the monument, he noted that this would be enough for the pyramidion and a number of important projects. He still had to finish the stairway and pave the floor of the shaft. The interior walls of the old section of the shaft needed plastering and the elevator car and engine had to be converted for passengers. Finally, electric lights had to be furnished for the interior, and the boiler had to be removed to the edge of the monument lot.¹

After Casey essentially finished the pyramidion in 1884, he turned to his list of unfinished projects, which included the placement of a growing number of memorial stones in the monument and the completion of an aesthetically-pleasing terrace around the base of the obelisk. Casey estimated the cost of completing all these projects at about \$166,800, assuming that the terrace would need only simple earth-filling and grading. A more elaborate design, such as one with a marble wall surrounding the shaft, would raise the cost to \$612,300.²

By the end of 1884, the four iron columns of the elevator shaft rose 517 feet, permitting the elevator to go nearly that high. In the meantime, the four outer columns that supported the stair landings reached the 500-foot platform.³ Much more remained to be done before the stairway and elevator were considered complete. Temporary wooden covers had been placed over the iron stairs and platforms to protect them from the construction work. After most of the major construction was completed, workmen had to remove the wooden covers and replace them with iron or steel plates. The stairway also needed metal handrails. Concerned about the potential fire hazard, Casey was anxious to replace them as soon as possible.

The machinery that operated the elevator could carry a 10-ton load at 50 feet a minute. Casey proposed to retain the speed but convert the elevator platform into a passenger car. He planned to add seats and soft linings to the walls and generally embellish the interior and exterior of the car.

Casey wanted to move the boiler house and dynamo engines that

operated the elevator to the western part of the monument grounds. Underground pipes would channel the steam that ran the engines and the resulting exhaust fumes to and from the engines and the elevator. Casey also proposed a new boiler house, stack, and 80-horsepower boiler.⁴⁰

After passage of the 1885 appropriation, Casey let a contract for the ironwork to replace the wooden treads and platform covers and add the handrails. Difficulties at the mill in rolling the steel treads of the stairs halted alterations to the engine, boiler house, and the elevator car along with other work until later in the year. After overcoming this problem, the contractor made such excellent progress that by February 1886 workers installed all the platform covers and stair treads and more than half the handrails.⁵ By April even the handrails were completed and the ungalvanized iron painted. This work permitted visitors to ascend the monument. By the end of September more than 10,000 had walked up to the 500-foot platform.

In July 1886 Otis Brothers received a contract for alteration of the elevator machinery and construction of a passenger car. By the end of the year, this work was finished and successfully tested. In the meantime, contracts were issued for placement of two steam boilers and the pipe connections between them and the engine house.⁶

In his 1882 plan for a terrace, Casey suggested eliminating the two doorways that had been built according to the Mills design during the early stages of construction. These were large Egyptian-styled doorways 15 feet high by six feet wide. A heavy pediment and an entablature with a carved winged ball and asp surmounted each door.

The doorways conformed to the original design of a massive pantheon surrounding the lower part of the obelisk. Since the pantheon had been abandoned, Casey favored removing the doorways because they detracted from the "character of an obelisk" and lessened the structure's unity. He recommended closing them and replacing them with an entrance through a gallery running beneath the terrace leading to the eastern staircase and passing underneath the east wall of the obelisk.

By the end of 1884, Casey still believed that the doorways should be eliminated by closing them off with ashler marble that matched the rest of the shaft. He also maintained that an unobtrusive entrance could be built beneath the terrace. "This closing of the doors," said Casey, "will present the structure to the eye and mind as an obelisk pure and simple, and will undoubtedly add to the dignity and impressiveness of the structure."⁷

Shortly after making this statement, Casey changed his mind. A careful study convinced him that if a subterraneous passage was built under the terrace, it would be necessary to cut away a substantial mass of concrete in the upper portion of the foundation. While conceding that this might not necessarily injure the foundation because the cut would be located at the cross section of the foundation where there was the least resistance, he recommended that the commission abandon the plan.

He proposed instead that they close the west doorway with a thin wall of marble that matched the shaft, and that they reduce the opening of the east doorway to eight feet, leaving it the only entrance to the monument. This doorway would be shut by two marble doors, the exterior surface of which would be flush with the face of the wall and uniformly lined up with the bond.⁸

The commission quickly approved Casey's revised plan. Casey contracted with Hugh Sisson for the marble pieces to enclose one doorway and shorten the second. Meanwhile, two stonecutters removed the architraves and lintels that jutted out from the doorways. The two marble doors revolved upon heavy bronze hinges. Each leaf weighed over one-half ton and was supported by a steel friction roller. The crew completed this work by the end of 1885.⁹

Casey had always worried about protecting the monument from damage by lightning. He thought it had been imprudent not to protect against lightning during construction. He supplied the unfinished structure with lightning rods and used the four Phoenix columns that supported the elevator shaft as electrical conductors. The cast iron shoes at the bottom of the columns were attached to the drum pit beneath the floor of the shaft. These shoes were then connected to .75-inch soft copper rods that led to the bottom of a well in the center of the foundation. After the copper rods were inserted in the well, it was filled with clean sharp sand to 15.67 feet. The four columns, lengthened during construction, continued to act as lightning conductors. During the five years it took to finish the shaft it was never damaged by electrical storms.

When the walls of the obelisk were enclosed at the pyramidion, four copper rods .75 inches in diameter were run from each of the four columns to the capstone. From there they were joined together with one 1.5-inch copper rod. While passing vertically through the capstone, this copper rod was screwed into the aluminum apex. This system of conductors was completed in January 1885.

The system soon had a test. In April lightning struck near the top, but caused no damage. The second storm in June damaged the capstone. Without delay, Casey consulted a team of experts who recommended that the interior conductors be connected by a system of rods and a greater number of points, all located upon the exterior of the pyramidion.¹⁰

Casey added four half-inch copper rods, "fastened by a band to the aluminum terminal and led down the corners to the base of the pyramidion." There the rods passed inward through the masonry and were jointed to the iron columns. The exterior rods, each more than 60 feet long, were also connected at two intermediate points to the iron columns by means of copper rods either .75 inches or .5 inches in diameter. In all, 16 rods connected the exterior system of conductors with the interior conducting columns. Where the exterior rods at the corners "cross the eleven

highest horizontal joints of the masonry of the pyramidion, they are connected to each other all around by other copper rods sunk into those joints." Casey gold plated and tipped with aluminum all of the exterior rods, couplings, and fittings. They were studded every five feet with copper points three inches long. There were 200 of these points in all.¹¹

The revised system of conductors that Casey had installed that year appeared to solve the problems. At the end of 1886 Casey reported that the new system had "fully answered all expectations." Even a heavy electrical storm on 22 May 1886 "failed to produce any disruptive effects." By 1900, there was no evidence that electrical storms had caused any damage to the monument.¹²

In January 1885 a contract was issued for an interior lighting system of 75 incandescent electric lamps, each with 16 candle power. The dynamo and cables of the system could produce enough power to light 125 lamps. From the floor of the monument to the 200-foot level two lights were fixed to each platform, and from this point to the 480-foot level there was only one to each platform. The dynamo, designed to produce 2,000 candle power, was set up in an enlarged engine house built south of the monument in 1886. The lighting system was installed by the end of **1885**.¹³

Casey asked that a board of engineers review the lighting system. After studying the board's report, Casey developed some ideas to improve it. He proposed adding eight interior lamps, most of which would be placed as far up as the 517-foot level. Casey also recommended readjustment of wires and the electrical plant. This work was finished in January 1887. By 1894, 98 lamps lit the interior of the shaft. The four serving the passenger elevator contained 20 candle power. All the rest contained 16. Westinghouse produced the 25-horsepower engine that powered the **dynamo**.¹⁴

As the superstructure neared completion in 1884, Casey noticed that the backing of the first 150 feet of the interior walls consisted of roughly constructed rubble masonry. Many of the joints collected water from the condensation that ran down the face of the walls. The water absorbed into the walls destroyed the stone. Casey first suggested plastering this portion of the interior face with Portland cement mortar, rubbed down and lined off as coarse ashlar. Several months later, he reconsidered his proposal and suggested plastering only the lower portions of the shaft. Any imperfect joints above that area could also be **repointed**.¹⁵ Neither plan was carried out, and nothing was done about the problem for many years.

In 1886 the floor of the monument was paved with blue stone flagging arranged in pleasing patterns. At that same time the drum pit and trench that held the main shaft of the engine were covered with wrought and cast-iron plates.¹⁶

When Casey assumed charge of construction at the monument, he immediately measured and recorded the inscriptions on all the memorial stones fixed to the walls of the unfinished obelisk. Although it would be

several years before additional stones could be fixed, Casey needed this information for his plans. In the meantime, he stored all the unfixed memorial stones in the lapidarium.¹⁷

The editors of *The American Architect and Building News* considered the memorial stones to be in "poor taste." The stones became objects of ridicule and misinformation. One source said that the Joint Commission would no longer use the memorial stones. This was not true. Although Casey showed some unwillingness to include all the memorial stones, he was satisfied that most of them would eventually be installed.¹⁸

By July 1878, the Society had received 189 memorial stones, and 92 had been fixed to the walls of the unfinished shaft. In removing the six feet of walls from the top, Casey had to remove eight of these stones, which he stored in the lapidarium along with the others. Casey wisely decided against fixing any more memorial stones until the walls of the superstructure were complete and the bond in the masonry had time to strengthen. He suggested cutting the stones to a three to six-inch thickness and fastening them into depressions in the walls. Bronze expansion bolts with ornamental nuts would secure the stones. Casey recommended that memorial stones accepted in the future measure no more than two feet by five feet and three to six inches thick. The Joint Commission approved the proposal.¹⁹

When the superstructure was completed, Casey began to arrange for the insertion of the memorial stones. He also planned to repair several stones already fixed to the walls that had deteriorated so much that their inscriptions could no longer be read. Casey proposed to the Building Committee that the 53 stones presented by states, foreign countries, cities, and societies should be put in the walls first. These were installed in June 1885 between the 160-foot and 230-foot platforms. Stonemasons reduced the thicker blocks before inserting them into depressions in the granite ashlar that varied from four to seven inches. Contrary to Casey's original plan, iron wedges, cement mortar, grouting, and pointing held the stones in place. Nine of the newly inserted stones were gifts from foreign countries, ten were from cities, nine were from Masonic temples, six from Odd-Fellow societies, four from the Sons of Temperance, and two from miscellaneous sources. The remaining 51 stones, which represented local groups, organizations, and individuals, were left to be inserted later.²⁰

Throughout the next several years, masons installed memorial stones wherever space was available. This largely depended on congressional appropriations, which diminished substantially after the superstructure was completed. As a result, only a few stones could be installed each year, while additional ones kept arriving as gifts from various sources. By the end of 1888, 40 stones remained to be inserted. Eventually nearly all were installed; by 1929, the walls contained 187.²¹

The pantheon that Mills designed for the base of the monument excited considerable controversy long after the monument was completed.

Although Casey abandoned the Mills design, many still felt that some effort, no matter how simple or plain, should be made to enhance the beauty of the grounds. The artist Larkin G. Mead suggested to the Joint Commission that his bas-reliefs portraying the life of George Washington be used as part of an elaborate terrace at the base of the monument. Pressured by some members of Congress who liked the idea, the Joint Commission directed Casey in March 1882 to study the possibility of constructing a terrace that would contain a retaining wall, walks, and landscaping and use Mead's bronze bas-reliefs.²²

As usual, Casey answered promptly. His plan incorporated a terrace supported by a masonry wall surmounted by a stone balustrade. Double staircases on all four sides of the monument would lead to the top of the terrace. On the blank walls of the terrace between the flights of these sets of steps, Mead would set his four bas-reliefs. Although the monument was an Egyptian obelisk "admitting no ornamentation," the terrace could be "capable of extensive and splendid ornamentation."

The steam engine for driving the elevator machinery within the shaft and the engine's boiler would be concealed within the terrace. The smoke flue could run underground to a vertical chimney.

Casey recommended closing the two doorways at the base of the obelisk and entering by a gallery under the top of the terrace, that would lead from the eastern staircase under the present east door. The doorways could be covered with thin marble walls, "the bond of the masonry to agree with that of the faces of the Monument."

Casey suggested that the Joint Commission ask three eminent sculptors and architects to propose a design for the terrace.²³ Those who advocated the Mills design or something similar were apparently vocal when Casey drew up his plan for the terrace. Was he influenced by their appeal? It would seem so. Although much less elaborate than the Mills design, Casey's plan for the terrace contained substantial ornamentation. When Casey prepared his plan, the question of the doorways to the shaft had not been settled, although he was later forced to alter this feature.²⁴

The commission approved Casey's plan and forwarded it to the Joint Committee on Public Buildings and Grounds of Congress with the suggestion that it appoint a commission consisting of architects and artists to review the design. The plan did not fare well in Congress. Although several congressmen showed some sympathy for it, particularly those who objected to a plain base, no one was willing to reopen the debate that had surrounded the Mills design. More important, perhaps, no one in Congress was anxious to appropriate more money for the monument than was absolutely necessary. Although by 1884 Casey's plan was still being considered, it was clear to many that it would probably never be executed.

Casey next offered a less elaborate proposal. He wanted to fill in the earth around the existing terrace and extend this filling far enough from the

monument that it would gradually fade into surrounding areas, giving the mound a more natural landscape. He suggested planting trees and shrubs and constructing concrete or stone approaches around the mound. Casey estimated that this plan would require 275,000 cubic yards of earth. The design would cost \$166,800, much less than the \$612,300 needed for his first plan. Correctly sensing the mood in Congress, the Joint Commission supported the second plan.²⁵

While Congress and the committee debated the question of the terrace, a related problem arose. In December 1884, during construction of the obelisk, Casey observed that when added weight caused the shaft to move, the two north corners of the structure settled first. He believed that the northside pond, called Babcock Lake, caused the earth to settle. This pond, the remnant of an old canal basin, was used for breeding carp and for ice skating in winter. Much of its bed consisted of soft mud and organic deposits. The surface of the pond was level with the bottom of the monument's foundation, and the bottom of the pond at its deepest point was about four feet beneath the bottom of the foundation. Only 250 feet separated the edge of the pond and the foundation.

Casey observed that when the pond's waters were drawn away, springs appeared along the south shore that deposited fine sand on the shore. He theorized that these spring waters came from a subterranean body of water south of the pond that carried sand originating in the thin strata underlying and surrounding the monument's foundation. If it continued, warned Casey, this action "might possibly degrade the bed of the foundation . . . and endanger its stability." To minimize this possibility and at the same time improve the terrace's landscape, Casey recommended that they fill in Babcock Lake to its banks. He estimated that he would need 83,000 cubic yards of earth.²⁶

Casey's argument appeared valid, but Congress was unwilling to eliminate a pond that had been used by the community for so many years. To appease Congress, Casey suggested a trench in the bed of the pond along the south bank deep enough to cut off the sand strata.²⁷ The Joint Commission preferred Casey's original proposal. The commission stood firm, and Congress finally conceded. The monument's stability was important enough to receive proper congressional attention.

In March 1887 a contract was awarded for filling in earth at the base of the monument as well as Babcock Lake. Three months later another contract was issued for a 10-foot-wide pavement around the base of the shaft, which was completed in November. Congress had to pass special legislation to permit large quantities of earth to pass through the city.²⁸ So much earth was needed for the new terrace and pond that "literally a hill" was removed from one site in southwest Washington. The slope of the grounds was now "an inviting stretch of park land, the venue [*sic*] of innumerable public gatherings."²⁹ By 1887, the terrace sloped "in all directions to meet the

natural surface at distances of 350 to 450 feet from the shaft.”³⁰

In late 1886 Casey recommended to the Building Committee that the monument be opened to the public. He proposed that the monument be placed in the hands of a permanent government agency that would operate and maintain the structure and enforce rules whenever necessary. Only the year before he had warned the commission of vandalism by “thoughtless visitors.” When the commission recommended that the War Department maintain the monument because it would take congressional action, the commission directed Casey to prepare a letter to Congress.³¹

Supported by Casey’s letter, in January 1887 the commission formally requested Congress to place the monument under the management of the War Department. The commission suggested that the War Department “preserve [the monument] from injury and defacement, . . . supervise the operation of the machinery connected therewith, and assist in its inspection by visitors; and that a suitable sum should be annually appropriated for . . . maintenance. . . .”³²



"In the Elevator," an 1887 etching from *A Souvenir of the Federal Capital*, by Hutchins and Moore.

Library of Congress
(photograph USZ62-59907).

Congress failed to respond quickly, perhaps feeling that the monument was not finished enough to accept visitors on a large scale. More likely, Congress was reluctant to pass an appropriation sufficient to operate the monument. Congress’ failure to pass an appropriation compelled the commission to shut down the elevator service. Casey dismantled the steam engine, electric dynamo, and boiler to preserve them.

This did not stop the curious, averaging 125 a day, who came from all parts of the country to climb the monument stairs. Within one year about 27,000 people had visited the monument. Despite a guard posted at the bottom and another at the top, vandalism became a serious problem.

Finally, the Joint Commission instructed Casey to close the monument indefinitely to all visitors.³³

Work on the monument had come so far by 1888 that Casey's guiding hand was no longer necessary. On April 2, he was relieved of duty as Engineer in Charge of Construction of the Washington National Monument. Two days later Colonel John M. Wilson of the Corps of Engineers assumed the job. By then, there was little more to do on the monument than complete the terrace and construct a marble administration building on the grounds. The cost of building the monument stood at \$1,187,710, one-fourth of which had been raised by the Society for the first phase of construction.³⁴

After finishing his work at the monument, Casey served as president of the Board of Fortifications and Public Works in New York City and as a member of the Lighthouse Board. Promoted to brigadier general in July 1888, Casey was then appointed Chief of the Corps of Engineers. Although he retired in 1895, he supervised the completion of the Library of Congress, until his death in 1896.

After Casey's departure, the commission continued to pressure Congress for War Department control over the operation of the monument. By law the department already controlled the monument grounds. Noting how far the construction had advanced, the commission recommended that it be abolished and that the Society continue to operate in an advisory capacity to the War Department. Finally, it suggested that Congress appropriate enough money to pay the wages of a permanent staff at the monument consisting of one custodian, one steam engineer, one assistant steam engineer, one fireman, one assistant fireman, one car conductor, one floor attendant, one attendant at the top, and three day and night watchmen. The commission estimated it would cost \$10,500 annually to operate the monument.

Almost two years had passed since the Joint Commission had made its first request to Congress. On 2 October 1888, Congress finally passed legislation incorporating most of the recommendations made by the commission. Congress dissolved the Joint Commission and appointed the War Department custodian of the monument. The Corps of Engineers ultimately gained responsibility for the monument, which was assigned to the Officer in Charge of Public Buildings and Grounds.³⁵

The monument, now officially opened to the general public, immediately became the object of both praise and scorn. The furor that began over the monument's design long before it was constructed continued well into the 20th century. While laymen marveled at this almost superhuman effort, serious and professional observers actively criticized the monument. Some reflected the views of earlier critics who had rejected the Mills design in toto and who were opposed to any of the modifications suggested by Casey.

Those who despised the monument regarded it as the abomination of

the ages. In 1884 one critic noting Casey's work in strengthening the foundation facetiously added that "it is . . . to be regretted that ages are likely to elapse before the monument will fall down."³⁶ Strongly condemning the fact that the Mills peristyle was not incorporated in the monument's base, the same writer contended that:

There is some satisfaction in reflecting that the United States now possesses the tallest building in the new world, but this cheap glory will not last long, and when it is gone there will be little else about the monument to be proud of. It is curious to see how completely the original design of the monument has been forgotten. As a part of Mills's novel and thoroughly classical conception, the obelisk, rising from the stupendous colonnade which supported it, was well-proportioned and elegant, but without that support it is an ugly chimney, and nothing more; and the ridiculous attempts which have been made ever since Mills's design was abandoned to argue people into the idea that the monument, as it now stands, is beautiful, or symbolic, or Egyptian, or anything else but a lanky pile of stone, simply illustrate the dullness and hypocrisy which rein supreme among us in regard to artistic matters. If it were not for the enormous cost of carrying out the original plan, with its peristyle of marble columns a hundred feet high, we should be strongly in favor of returning to it. . . .³⁷

Although critics of the monument had not been enamored of the classical pantheon, they were convinced that as it stood, the monument was incomplete. Even a simple base, these critics agreed, was better than none.³⁸

Others gradually became convinced, though hesitatingly, that the obelisk did possess some fine qualities. As one early critic pointed out, "Those who wish to find beauty in it . . . will say that it befits republican simplicity and the rugged honesty and virtue of Washington."³⁹ There were those, however, who, while accepting the monument as a *fait accompli*, would continue to argue that the base or terrace was less than satisfactory.

Many people accepted and praised Casey's final design. Some favorably compared the monument and the man it sought to memorialize. One writer declared that the monument typified the character of George Washington, "lofty in its grandeur, plain in its simplicity, and white in its purity."⁴⁰ Perhaps the most laudatory opinion was contained in a 1902 report by Frederick Law Olmsted, Jr., and Charles Moore:

Taken by itself, the Washington Monument stands not only as one of the most stupendous works of man, but also as one of the most beautiful of human creations. Indeed, it is at once so great and so simple that it seems to be almost a work of nature. Dominating the entire District of Columbia, it has taken its place with the Capitol and the White House as one of the three foremost national structures.⁴¹

Others viewed the monument as an object of "magnificent simplicity."⁴²